Geophysical Research Abstracts
Vol. 20, EGU2018-12355, 2018
EGU General Assembly 2018

Mapping Seasonal Runoff Distribution in Northwestern Hungary Using Kriging Method

Kevin Matyas (1), Eszter Nagy (2), Katalin Bene (3), Péter Torma (4), and Gábor Kerék (5)

(1) Department of Transport Infrastructure, Faculty of Architecture, Civil and Transportation Engineering, Széchenyi István University, Egyetem square 1., H-9026 Győr, Hungary (matyas.kevin@sze.hu), (2) Department of Hydraulic and Water Resources Engineering, Budapest University of Technology and Economics, Műegyetem rkp. 3., H-1111 Budapest, Hungary (eszternagy93@gmail.com), (3) Department of Transport Infrastructure, Faculty of Architecture, Civil and Transportation Engineering, Széchenyi István University, Egyetem square 1., H-9026 Győr, Hungary (benekati@sze.hu), (4) Department of Hydraulic and Water Resources Engineering, Budapest University of Technology and Economics, Műegyetem rkp. 3., H-1111 Budapest, Hungary (torma.peter@epito.bme.hu), (5) North-Transdanubian Water Directorate, Árpád street 28., H-9021 Győr, Hungary (Kerek.Gabor@eduvizig.hu)

Water managers base their use decisions on resource availability and societal demands. High variability seasonal stream flow make water supply less predictable. Demand changes are often driven by demographic and climatic factors that may also be unpredictable. In northwestern Hungary we have undertaken a new study to assess the available water supply and changing demand. In the first step of this study, monthly water supply was evaluated at gauged and ungauged watersheds. Thirty-six watersheds were selected to evaluate regional seasonality based on 15 years of measured runoff data. Geostatistical methods were applied to create regionalized monthly flows via point kriging. A direct approach was applied by evaluating flows independently, month by month, then regionalizing them in northwestern Hungary. Cross-validation was used to evaluate the accuracy of the geostatistical prediction.

This work was undertaken as part of a project funded by the EFOP-3.6.1-16-2016-00017.

Keywords: geostatistics, point kriging, seasonal runoff, runoff prediction